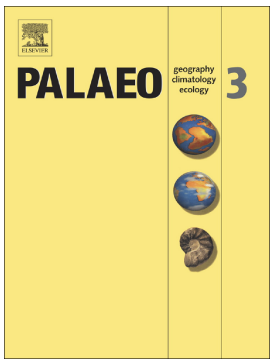

Tree-ring based summer temperature regime reconstruction in XiaoXing Anling Mountains, northeastern China since 1772 CE

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Tree-ring based summer temperature regime reconstruction in XiaoXing Anling Mountains, northeastern China since AD 1772

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Abstract Long-term paleoclimatic variability based on high-resolution proxy records, such as tree-ring data, are scarce for the XiaoXing Anling Mountains of China. We developed a new tree-ring width chronology from Korean pine (*Pinus koraiensis*) spanning the period 1667–2015. Climate-growth correlation analysis revealed that early growing season temperature was the main climatic factor controlling tree-ring growth. June mean temperatures from 1772–2015 were reconstructed using the standard chronology. These results provide the first dendroclimatological reconstruction based on growing season temperature in the XiaoXing Anling Mountains. Reconstruction results explained 39.3% of climatic variance over the calibration period 1959–2015, and they indicated that the central XiaoXing Anling Mountains have experienced six major warm periods, five major cold periods, and several cold years that coincided with a sequence of major tropical volcanic eruptions. Temperature reconstructions have successfully captured the most recent climatic warming events and are consistent with other reconstructions from nearby regions on decadal timescales. Spatial climate correlation analyses with a gridded temperature dataset revealed that our temperature reconstructions contain strong regional temperature signals for the